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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,550	12/26/2001	Katsuhiko Suzuki	H07-138280M/NHK	8312

7590 08/22/2003

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EXAMINER

NOTE, JANIS L

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 08/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/025,550

Applicant(s)

Suzuki et al

Examiner

J. DOTE

Group Art Unit

1756

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 6/6/03
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-20 is/are pending in the application.
- Of the above claim(s) 11-20 is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-10 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☒ Claim(s) 1-20 are subject to restriction or election requirement.

## Application Papers

- ☒ The proposed drawing correction, filed on 6/6/03, is ☒ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some\* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other \_\_\_\_\_

Office Action Summary

1. The examiner acknowledges the amendments to claims 1 and 2, and the addition of claims 3-20 filed in Paper No. 4 on Jun. 6, 2003. Claims 1-20 are pending.

2. Newly submitted claims 11-20 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Instant claims 1-10 are drawn to an image forming process, classified in class 430, subclass 122.

Instant claims 11-20 are drawn to an imaging apparatus, classified in class 399, subclass 269.

Instant claims 1-10 and instant claims 11-20 are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus, such as an apparatus that does not comprise a light beam to form an electrostatic latent image and an image carrier with a photoconductive characteristic. The process recited in instant claims 1-10 can be practiced with an imaging apparatus that comprises: (1) a dielectric imaging drum as the image carrier that comprises a

dielectric layer formed on a conductive drum; and (2) an ion generating head to form an electrostatic latent image on the surface of the dielectric imaging drum.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, and as shown by their different classification, restriction for examination purposes as indicated is proper.

Since applicants have received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 11-20 have been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed in Paper No. 5 on Jun. 6, 2003, have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

#### INFORMATION ON HOW TO EFFECT DRAWING CHANGES

##### 1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

**2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

**Timing of Corrections**

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

4. The objections to the drawings set forth in the office action mailed on Mar. 18, 2003, Paper No. 3, paragraphs 1 and 2, have been withdrawn in response to the proposed drawing corrections filed in Paper No. 5.

The rejection of claims 1 and 2 under 35 U.S.C. 112, second paragraph, set forth in Paper No. 3, paragraph 4, has been withdrawn in response to the amendments to claims 1 and 2.

The rejection of claims 1 and 2 under 35 U.S.C. 102(b) over US 5,923,933 (Anzai), set forth in Paper No. 3, paragraph 9, has been withdrawn in response to the amendments to claims 1 and 2, which now positively require that the toners have the shape coefficients SF1 and SF2 recited in the instant claims. Anzai does not teach such toners.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3, 4, 6-8, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 7 are indefinite in the limitation "peripheral speed ratio S1 exceeds 2.0" because the limitation is outside the scope of instant claims 1 and 2, respectively. Instant claims 1 and 2 recite that the peripheral speed ratio S1 "is set in the

range of 0.8 - 2.0." The recitation that the speed ratio S1 "exceeds 2.0" is outside the range of 0.8 to 2.0.

Claims 4 and 8 are indefinite in the limitation "peripheral speed ratio S2 exceeds 2.0" because the limitation is outside the scope of instant claims 1 and 2, respectively. Instant claims 1 and 2 recite that the peripheral speed ratio S2 "is set in the range of 1.05 - 2.0." The recitation that the speed ratio S2 "exceeds 2.0" is outside the range of 1.05 to 2.0.

Claims 6 and 10 are indefinite in the phrase "magnetic developing agent comprises using a magnetic carrier that includes iron-powder-system carriers, ferrite-system carriers and magnetite-system carriers" (emphasis added) because it is not clear how a development agent uses a magnetic carrier.

The phrase is further indefinite because it is not clear whether applicants intend for the magnetic carrier to include all three system carriers, or only one.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(1) Claims 1 and 2 recite a two-component magnetic developing agent "including toners and magnetic carriers." The originally filed specification does not provide an adequate written description of said magnetic developing agent as now recited in the instant claims. Throughout the originally filed specification, the specification discloses the use of a two-component magnetic developing agent "consisting mainly" of toners and magnetic carriers. See the specification, for example, page 8, lines 14-15, page 9, lines 4-6, page 10, lines 1-2, and page 13, lines 9-10. The claim language "including toners and magnetic carriers" is broader than the originally filed language "consisting mainly of toners and magnetic carriers" because it includes magnetic developing agents that do not mainly comprise toners and magnetic carriers, but comprise other ingredients in amounts greater than the toners or magnetic carriers.

(2) Claims 3 and 7 recite that the peripheral speed ratio  $S1$  exceeds 2.0. The originally filed specification does not provide an adequate written description of such a range of  $S1$ . The originally filed specification discloses that the peripheral



speed ratio S1 is "set in the range of 0.8 - 2.0." See the specification, page 8, lines 21-24, page 10, lines 7-10, and page 17, lines 21-22. The specification further discloses the reason why the "upper limit of the peripheral speed ratio S1 . . . is set at 2." See the specification, page 17, lines 17-19. There is no disclosure in the originally filed specification that the peripheral speed ratio S1 exceeds the value of 2.0, as now recited in the instant claims.

(3) Claims 4 and 8 recite that the peripheral speed ratio S2 exceeds 2.0. The originally filed specification does not provide an adequate written description of such a range of S2. The originally filed specification discloses that the peripheral speed ratio S2 is "set in the range of 1.05 - 2.0." See the specification, page 8, line 24, to page 9, line 3, page 10, lines 10-15, and page 17, lines 23-25. The specification at page 16, line 24, to page 17, line 5, further discloses the reason why "the upper limit value of the peripheral value is set at 2." There is no disclosure in the originally filed specification that the peripheral speed ratio S2 exceeds the value of 2.0, as now recited in the instant claims.

(4) Claims 5 and 9 recite that the toners "comprise particle diameters of 6-12  $\mu\text{m}$  [sic: particles having diameters . . .]." The originally filed specification does not provide an adequate written description of such particles. The originally filed

specification at page 18, lines 7-8, discloses that the "average particle diameter of the toners may be in the range of 6-12  $\mu\text{m}$ " (emphasis added). There is no disclosure in the originally filed specification of toners comprising "particle diameters of 6-12  $\mu\text{m}$ ," as recited in the instant claims.

(5) Claims 6 and 10 recite that the "particle diameters of the carriers range from 50 to 150  $\mu\text{m}$ ." The originally filed specification does not provide an adequate written description of such particle diameters. The originally filed specification at page 19, lines 18-20, discloses that the "average particle diameter of the carriers may be set in the range of 50-150  $\mu\text{m}$ " (emphasis added). There is no disclosure in the originally filed specification that the "particle diameters of carriers range from 50-150  $\mu\text{m}$ ," as recited in the instant claims.

9. Claims 5 and 9 are objected to because of the following informalities:

The phrase "toners comprise particle diameters of 6-12  $\mu\text{m}$ " recited in the instant claims is objected to, because toners comprise components, not properties, such as particle diameters of 6-12  $\mu\text{m}$ .

Appropriate correction is required.

10. The examiner has interpreted the claim language recited in instant claims 6 and 9 as requiring that the magnetic carriers comprise iron-powder-system carriers, ferrite-system carriers, or magnetite-system carriers. Rejections based on the examiner's interpretation are set forth infra.

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 1, 2, 4-6, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,923,933 (Anzai) combined with Japanese Patent 2000-267338 (JP'338). See the Japanese Patent Office machine-assisted translation of JP'338 for cites.

Anzai discloses an image forming method comprising the steps of: (1) developing an electrostatic latent image formed on an image carrier 1 with a two-component developer comprising a toner and magnetic carrier; (2) transferring the toner image onto a recording medium; and (3) fixing the transferred toner image to the recording medium using the fixing device 25. See Fig. 1, col. 4, lines 27-34, and col. 4, line 56, to col. 5, line 5. The electrostatic latent image is developed by a first developing roller 61 and a second developing roller 62 rotating in directions opposite to each other. The first developing

roller 61 moves in a direction opposite to the image carrier 1, and the second roller 62 moves in the same direction as the image carrier 1. Anzai discloses that when the ratio of circumferential (or peripheral) speed S1 of first developing roller 61 to the circumferential speed of the image carrier is set to 1.5, the ratio of the circumferential speed of the second roller to the image carrier S2 is preferably in the range of 2 to 3 to obtain an "allowable image." Col. 12, lines 23-27. The ratio S1 of 1.5 and the ratio S2 of 2 are within the ranges of 0.8 to 2.0 and 1.05 to 2.0, respectively, recited in instant claims 1 and 2. Furthermore, the ratio S2 of 3 is within the range of "exceeds 2.0" recited in instant claims 4 and 8.

Anzai discloses that the magnetic carrier in the two-component magnetic developer may be a ferrite or a magnetite carrier. Col. 9, lines 29-30. Both ferrite magnetic carriers and magnetite magnetic carriers meet the compositional limitation recited in the instant claims 6 and 10. Anzai further teaches that the magnetic carriers have a volume average particle size of 70 to 120  $\mu\text{m}$ . Col. 9, lines 30-31.

Anzai does not disclose that the magnetic carrier has particle diameters ranging from 50 to 150  $\mu\text{m}$  as recited in instant claims 6 and 10. However, as discussed above, Anzai teaches that its carriers have a volume average particle size of

70 to 120  $\mu\text{m}$ . The volume average particle size is usually defined as the sum of a number of particular particle diameters, each multiplied by the volume of particles having said particular particle diameter, divided by the total volume of particles. In other words, the volume average particle size is determined by particles having particle sizes greater than or less than the average particle size. Particle diameters of 50 and 150  $\mu\text{m}$  are less than or greater than the average particle sizes of 70 and 150  $\mu\text{m}$ . Thus, because Anzai teaches that its magnetic carriers have a volume average particle size of 70 to 120  $\mu\text{m}$ , it is reasonable to presume that Anzai's magnetic carriers have particle diameters ranging from 50 to 150  $\mu\text{m}$ . The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Anzai does not disclose the use of a toner having the shape coefficients SF1 and SF2 as recited in instant claims 1 and 2. Anzai discloses that "the toner used is a toner containing a resin, a coloring material, a charging control material and so on and having a volume average particle size of 5 to 12  $\mu\text{m}$ ." Anzai teaches that toners having said particles are capable of providing a "high resolution print above 16 lines per mm." Col. 9, lines 52-60.

JP'338 discloses a toner having shape coefficients SF1 and SF2 of 148 and 123, which are within the ranges of 120 to 170 and

110 to 130, respectively, recited in instant claims 1 and 2. See toner 1 at paragraphs 0058-0060, and Table 1 at paragraph 0075.

The toner has a volume average particle size of 8.0  $\mu\text{m}$ . See paragraph 0059. The volume average particle size of 8.0  $\mu\text{m}$  is within the range of 5 to 12  $\mu\text{m}$  taught by Anzai. JP'338's toner comprises a polyester binder resin, a wax, and colorant. JP'338 teaches that the toner may further comprise a charge control agent to adjust the electrification of the toner.

Paragraph 0048. JP'338 discloses that its toner can be used in a two-component developer comprising a magnetic carrier.

Paragraphs 0052-0053. Accordingly to JP'338, its toner has superior powder characteristics, such as storage stability, and good offset resistance. Paragraphs 0007 and 0076. JP'338 further discloses that its toner can be fixed without the use of a releasing oil. Paragraph 0054. JP'338 discloses that when the releasing oil evaporates, an unpleasant smell may be given or it may contaminate the "inside the plane." Paragraph 0004, lines 13-14.

JP'338 does not disclose that its toner 1 comprises particles having particles diameters of 6-12  $\mu\text{m}$  as recited in instant claims 5 and 9. However, as discussed above, JP'338 discloses that its toner 1 has a volume average particle size of 8  $\mu\text{m}$ . For the reasons discussed regarding the particle size of the magnetic carriers, supra, the volume average particle size is

determined by particles having particle sizes greater than or less than the average particle size. Particle diameters of 6 and 12  $\mu\text{m}$  are less than or greater than the volume average particle size of 8  $\mu\text{m}$ . Thus, because JP'338's toner 1 has a volume average particle size of 8  $\mu\text{m}$ , it is reasonable to presume that JP'338's toner 1 comprises particles having particle diameters ranging from 6 to 12  $\mu\text{m}$ . The burden is on applicants to prove otherwise. Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art to use JP'338's toner 1 having shape coefficients SF1 and SF2 of 148 and 123, respectively, as the toner in the image forming method disclosed by Anzai, and to use a fixing device without using a release oil in the fixing step in said method, because that person would have had a reasonable expectation of successfully obtaining an image forming method that provides fixed toned images on recording media without offset and without unpleasant odors.

Applicants' arguments filed in Paper No. 4 have been fully considered but they are not persuasive.

Applicants assert that Anzai's disclosures of the ratio of circumferential speed S1 of 1.5 and the ratio of circumferential speed S2 in the range of 2 to 3 to obtain an allowable image "merely attempt to determine optimal ranges of circumferential rotating speed ratios for the two developing rollers."

However, as discussed in the rejection, Anzai's ratio S1 of 1.5 and ratio S2 of 2 are within the ranges of 0.8-2.0 and 1.05-2.0, respectively, recited in instant claims 1 and 2. Thus, Anzai teaches the advantageous use of ratios S1 and S2 that meet the S1 and S2 limitations recited in instant claims 1 and 2.

Applicants assert that the references do not teach or suggest the ranges of toner shape coefficients to compensate for image quality problems with a developing device as discovered by applicants. Applicants also assert that there is no motivation disclosed in the references to combine the references as set forth in the rejection because the references are directed to different objectives and different methods. Applicants assert that the downstream fixing device of JP'338 cannot be combined with the upstream development device of Anzai because "these two devices are located at opposite ends of an electrophotographic printer." Applicants further assert that there is no disclosure in Anzai that the teachings of JP'338 are "compatible to solve the development problems identified by Anzai."

However, the reasons to combine the references do not have to be those of applicants. As discussed in the rejection, Anzai discloses an imaging method that meets the steps recited in the instant claims, but for the use of the particular toner recited in instant claims 1 and 2. Anzai's method comprises, in addition to developing an electrostatic latent image with two developing



rollers 61 and 62, the steps of transferring the developed toner image from the image carrier to a recording material, and fixing the transferred toner image to the recording material with a fixing device 25 to form a recorded fixed image on a recording material. These steps are also required in the method recited in instant claims 1 and 2. As seen in the imaging apparatus in Anzai's Fig. 1, both developing rollers 61 and 62 and the fixing device 25 are present in Anzai's imaging apparatus. Furthermore, Anzai at col. 8, lines 4-10, discloses that the fixing device 25 is composed of a heated roller 27 and a back-up pressing roller 26 to fix the toner image transferred to a paper sheet. In other words, Anzai's fixing device 25 uses heat and pressure to fix a toner image on a recording material, such as paper. As noted by applicants, JP'338 also "uses heat and pressure to fix an image [toner] to recording media, such as paper." See Paper No. 4, page 12, lines 14-19. Thus, both Anzai and JP'338 teach heat-fixing a toner image on a recording medium, such as paper, with a heat-fixing device. Accordingly, contrary to applicants' assertion, a person having ordinary skill in the art would have easily recognized that Anzai's imaging method comprises a heat-fixing step, and that the use of a heat-fixing device without using a release oil, as taught by JP'338, can readily be used in Anzai's heat-fixing step.

Moreover, as discussed in the rejection, JP'338 teaches a toner that not only meets the toner shape coefficients SF1 and SF2 limitations recited in instant claim 1 and 2 but also has the properties that Anzai teaches are desirable for use in Anzai's imaging method. JP'338 also discloses the advantages of using its toner in electrophotographic imaging processes. Thus, a person having ordinary skill in the art would have found ample reason, suggestion, and motivation in the teachings of JP'338 and Anzai to use JP'338's toner and a fixing device without using a release oil in the image forming method taught by Anzai. Accordingly, the rejection stands.

13. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 872-9310 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Palestine Jenkins, whose telephone number is (703) 308-3521.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JLD  
August 21, 2003

*Janis L. Dote*  
JANIS L. DOTE  
PRIMARY EXAMINER  
GROUP 1500  
1700